

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A tire building drum, comprising:
bead lock means for holding a pair of bead cores and
a circular drum core expansively supporting a center portion of a carcass band to define
an internal shape of a green tire with an outer contour, the drum core comprising:
several rigid segments which are radially expandable/contractible and which are
circumferentially adjacent to each other to form said outer contour,
wherein, as viewed in a cross sectional plane including a central axis of the drum
core, said outer contour has a flat contour portion parallel to the central axis in a widthwise
central region and each of the rigid segments has several distance pieces forming at least a part
of said flat contour portion and end pieces forming portions of the outer contour widthwise
outside of the portion formed by the distance pieces, the distance pieces and the end pieces are
aligned in the width direction of the drum core, and
wherein said distance pieces are disposed such that their thickness direction is
directed to the width direction of drum core and are detachably configured, and said end pieces
are thicker than said distance pieces in the width direction of the drum core,

wherein said rigid segments comprise:

a base column supporting the end and distance pieces,
a center stopper fixed at the center of the base column in the width direction of the
drum core as a base point in the width direction of the drum core, and

an end piece fixing means fixing each of the end pieces on the base column,
wherein, the base column is coupled to a means for radially expanding/contracting the
rigid segments,

the base column is provided with a guide support portion supporting the end and distance
pieces in such a manner that the end and distance pieces can be moved back and forth in the
width direction of the drum core, and

an engagement portion engaging with the guide support portion of the base
column is provided on each of the end and distance pieces,

wherein, as viewed in the section perpendicular to the width direction of the drum core,
the guide support portion of the base column comprises:

a columnar member, wherein the engagement portion of the distance piece comprises a
member engaging with the columnar member in male/female manner in the section
perpendicular to the width direction, and

a cutout portion that releases the engagement between the base column and the
distance piece so as to allow removal of the distance piece without disengagement of the end
pieces, the cutout portion provided on the columnar member at the midpoint in its longitudinal
direction.

Claim 2 (canceled).

3. (previously presented): The tire building drum according to claim 1, wherein said end pieces, forming a portion of the outer contour of the rigid segment, are configured by

arranging comb plates, which mesh with each other between the adjacent segments, in the width direction.

Claim 4 (canceled).

5. (previously presented): The tire building drum according to claim 1, wherein the drum is used for building a radial tire.

6. (previously presented): The tire building drum according to claim 1, wherein an RFID tag is installed as a means for identifying a size of a current condition.

7 (currently amended): A tire building system for building a group of tires including tires in different sizes which have mutually different inner widths of green tires, the tire building system comprising a tire building drum that is used for building tires of at least two sizes among said different sizes,

the tire building drum comprising:

bead lock means for holding a pair of bead cores and
a circular drum core expansively supporting a center portion of a carcass band to define an internal shape of a green tire with an outer contour, the drum core comprising:

several rigid segments which are radially expandable/contractible and
which are circumferentially adjacent to each other to form said outer contour,
wherein, as viewed in a cross sectional plane including a central axis of
the drum core, said outer contour has a flat contour portion parallel to the central axis in a

widthwise central region and each of the rigid segments has several distance pieces forming at least a part of said flat contour portion and end pieces forming portions of the outer contour widthwise outside of the portion formed by the distance pieces, the distance pieces and the end pieces are aligned in the width direction of the drum core,

wherein said distance pieces are disposed such that their thickness direction is directed to the width direction of drum core and are detachably configured, and said end pieces are thicker than said distance pieces in the width direction of the drum core, ~~and,~~

wherein said rigid segments comprise:

a base column supporting the end and distance pieces,

a center stopper fixed at the center of the base column in the width direction of the drum core as a base point in the width direction of the drum core, and

an end piece fixing means fixing each of the end pieces on the base column,

wherein, the base column is coupled to a means for radially expanding/contracting the rigid segments,

the base column is provided with a guide support portion supporting the end and distance pieces in such a manner that the end and distance pieces can be moved back and forth in the width direction of the drum core, and

an engagement portion engaging with the guide support portion of the base column is provided on each of the end and distance pieces,

wherein, as viewed in the section perpendicular to the width direction of the drum core, the guide support portion of the base column comprises:

a columnar member, wherein the engagement portion of the distance piece comprises a member engaging with the columnar member in male/female manner in the section perpendicular to the width direction, and

a cutout portion that releases the engagement between the base column and the distance piece so as to allow removal of the distance piece without disengagement of the end pieces, the cutout portion provided on the columnar member at the midpoint in its longitudinal direction.

8 (currently amended): A method for setting up a tire manufacturing process, comprising:

selecting ~~an~~a ~~desired~~ inner width of a green tire~~[,]~~ ~~to be~~ built with the tire building system according to claim 7~~[,]~~ from plural widths ~~determined by a total thickness of the distance pieces; and~~

changing an amount of the distance pieces provided in the tire building system according to claim 7 so that the inner width of a green tire built with the tire building system according to claim 7 conforms to the desired inner width.

9 (previously presented): A method of manufacturing a tire built with the tire building drum according to claim 1, wherein a green tire is built by locking each of the bead cores with the corresponding bead lock means; thereafter radially expanding the drum core while approaching the bead lock means with each other to inflate the center portion of the carcass band; turning the side portions of the carcass band around the bead cores toward the outside in the radial direction; radially expanding the drum core with keeping the bead cores locked until it

reaches the maximum diameter; and assembling tire components including a tread rubber on the expanded drum core.

10 (previously presented): A method of manufacturing a tire built with the tire building drum according to claim 1, wherein the size of the drum core is varied by changing the total thickness of the distance pieces upon changing the size between green tires having different inner widths.

11 (previously presented): The method of manufacturing a tire according to claim 10, wherein, after the size of the drum core is varied and before the drum core is used, a size-identification code in an RFID tag is updated to the code corresponding to the size after the size has varied.